Foodborne Illness and Diseases

About Food Poisoning

In most cases of foodborne illness (food poisoning), symptoms resemble intestinal flu and last a few hours to several days. But in cases of botulism, or when food poisoning strikes infants, the ill, the elderly, or those with compromised immune systems, life-threatening complications can result.

Microscopic organisms that cause foodborne illness are everywhere-in the air, soil, water, and in human and animal digestive tracts. Most are capable of growing undetected in food because they do not produce an "off" odor, color, or texture. The only way these microbes can be prevented from causing human illness is by handling and storing food safely.

Bacteria

SALMONELLA

Disease: Salmonellosis
Source: Spread when contaminated food (meat, poultry, eggs) is eaten raw or undercooked. Also, when cooked food comes in contact with contaminated raw food, or when an infected person prepares food.
Symptoms (after eating): Onset: 6-48 hours; nausea, fever, headache, abdominal cramps, diarrhea, and vomiting lasting 2-7 days. Can be fatal to infants, the elderly, the infirm, and the immune-compromised.
Prevention: Separate raw foods from cooked foods. Thoroughly cook meat, poultry, and eggs. Consume only pasteurized milk, dairy products, and egg nog. Don't leave food at room temperature over 2 hours. Refrigerate below 40 degrees F.

STAPHYLOCOCCUS AUREUS

Disease: Staph
Source: Carried by people on skin, in boils, pimples, and throat infections; spread when carriers handle food. Staph bacteria produce toxins (poisons) at warm temperatures. Meat, poultry, salads, cheese, eggs, custards, and cream-filled desserts are susceptible foods.
Symptoms (after eating): Onset: 1-8 hours; vomiting, diarrhea, nausea, and abdominal cramps lasting 1-2 days. Rarely fatal.
Prevention: Cooking won't destroy staph poison, so practice good personal hygiene and sanitary food handling. Don't leave perishable food unrefrigerated over 2 hours. For quick cooling, place hot food in small containers no more than 4 inches deep; cover when cool and refrigerate.

CLOSTRIDIUM BOTULINUM

Disease: Botulism
Source: Most common in low acid foods canned improperly at home. The presence of these bacteria or their poisons is sometimes signaled by clear liquids turned milky, cracked jars, loose or dented lids, swollen or dented cans, or an "off" odor. Recently, botulism has also been associated with low oxygen cooked foods (i.e. foil wrapped; vacuum packaged) which have been held at room temperatures for long periods of time.
Symptoms (after eating): Onset: 4-72 hours; nervous system disturbances such as double vision, droopy eyelids, trouble speaking, swallowing, breathing. Untreated botulism can be fatal. If you or a family member have botulism symptoms, get medical help immediately. Then call health authorities.
Prevention: Carefully examine canned goods (particularly those canned at home), and don't use any canned goods showing danger signs. Also, cook and reheat foods thoroughly, keep cooked foods hot (above 140 degrees F) or cold (below 40 degrees F) and divide large portions of cooked food into smaller portions for serving and cooling.

CLOSTRIDIUM PERFRINGENS

Disease: Perfringens food poisoning
Source: "Buffet germ" that grows rapidly in large portions of food that cool slowly. It grows in chafing dishes which may not keep food sufficiently hot and in the refrigerator if food is stored in portions too large to cool quickly.
Symptoms (after eating): Onset: 8-24 hours; diarrhea, gas pains, nausea, and sometimes vomiting lasting only a day. Usually mild, but can be serious in ulcer patients, the elderly, ill, or immune-compromised.
Prevention: Keep food hot (above 140 degrees F) or cold (below 40 degrees F). Divide bulk cooked foods into small portions for serving and cooling. Reheat leftovers to at least 165 degrees F. Take special care with poultry, stew, soup, gravy, and casseroles.

CAMPYLOBACTER JEJUNI

Disease: Campylobacteriosis
Source: Contracted from untreated drinking water, infected pets, and when contaminated meat, poultry, milk, or shellfish is eaten raw or undercooked.
Symptoms (after eating): Onset: 2-10 days; severe diarrhea (possibly bloody), cramps, fever, and headache lasting 1-10 days.
Prevention: Don't drink untreated water or unpasteurized milk. Wash hands, utensils and surfaces that touch raw poultry or meat. Thoroughly cook meat, poultry, and seafood.

LISTERIA MONOCYTOGENES

Disease: Listeriosis

Source: Common in nature, food processing environments, and intestinal tracts of humans and animals. Spread in untreated water, unpasteurized milk and dairy products, raw meat and seafood, plus raw vegetables fertilized with infected manure.

Symptoms (after eating): Onset: 2-30 days. Adults can develop fever, chills, and intestinal flu-like symptoms. Infants may vomit, refuse to drink, or have trouble breathing. Possible complications-meningitis, meningo-encephalitis, blood poisoning, spontaneous abortion, stillbirths. Rare, but can be fatal. Pregnant women, newborns, the elderly, infirm, and immune-compromised are most at risk.

Prevention: Avoid raw milk and cheese made from unpasteurized milk. Follow keep refrigerated labels, observe sell by and use by dates, and thoroughly reheat frozen or refrigerated processed meat and poultry products before eating.

SHIGELLA BACTERIA

Disease: Shigellosis

Source: Spread when human carrier with poor sanitary habits handles liquid or moist food that is not thoroughly cooked afterwards. Shigella multiply at room temperature. Susceptible foods include poultry, milk and dairy products, salads, and other foods that require a lot of mixing and handling and no further heat treatment.

Symptoms (after eating): Onset: 1-7 days; abdominal pain, diarrhea, fever, sometimes vomiting, and blood, pus or mucus in stool; lasts 5-6 days. Most serious in infants, the elderly, infirm, or immune-compromised.

Prevention: Practice good personal hygiene and sanitary food handling (wash hands thoroughly and frequently). Also, avoid leaving perishable foods unrefrigerated over 2 hours and cook food thoroughly (reheat to at least 165 degrees F). Do not prepare food when ill with diarrhea or vomiting.

ESCHERICHIA COLI O157:H7

Disease: Hemorrhagic colitis

Source: Serotype 0157:H7 toxin contracted by drinking water which contains raw sewage (usually during travel). Also, can occur in raw or rare ground beef and unpasteurized milk.

Symptoms (after eating): Onset: 3-4 days; severe abdominal cramps followed by diarrhea (often bloody), nausea, vomiting, fever lasting to 10 days. May require hospitalization. Possible complication-Hemolytic Uremic Syndrome (HUS), a urinary tract infection capable of causing kidney failure in children.

Prevention: Don't drink untreated water or unpasteurized milk. Thoroughly cook food and reheat it to at least 165 degrees F. Don't leave perishable food unrefrigerated over 2 hours.

Viruses

HEPATITIS A

Disease: Infectious hepatitis
Source: Contracted when shellfish, harvested from water polluted by raw sewage, is eaten raw. Also spread by human carriers who prepare and serve uncooked food.
Symptoms (after eating): Onset: 14-50 days; fatigue, fever, nausea, vomiting, abdominal cramps, appetite loss, followed by liver enlargement, jaundice, and darkened urine. May cause liver damage and death.
Prevention: Avoid untreated drinking water and cook shellfish thoroughly. Also, practice good personal hygiene, handle all foods in a sanitary manner, and keep raw and cooked foods separated.

NOROVIRUSES

Disease: Viral gastroenteritis
Source: A group of viruses contracted when contaminated shellfish is eaten raw or partially cooked. Also, spread by infected people who prepare food when they are ill with these viruses.
Symptoms (after eating): Onset: 24-48 hours; diarrhea, vomiting, nausea, abdominal cramps, fever, chills, and body aches.
Prevention: Cook shellfish thoroughly. Practice good personal hygiene and handle food in sanitary manner. Do not prepare or serve food when ill with diarrhea or vomiting.

Mold

MYCOTOXINS

Disease: Mycotoxicosis
Source: Many foods are susceptible to a wide variety of molds. Some mycotoxins (poisons produced by molds) can be harmful if consumed in large amounts. When it occurs, mycotoxicosis is usually traced back to beans, peanuts, corn, and other grains that have been stored in warm moist places.
Symptoms (after eating): May cause liver and/or kidney disease. (This depends on the amount of mycotoxin and length of exposure.)
Prevention: Store foods properly, and check for visible mold and "off" color, odor, or texture. Discard contaminated food and clean container or storage area. (Hard cheeses, salami, or dry cured country ham may be salvaged by cutting out an inch of product on all sides and below the moldy area.)

Bacteria, Viruses, Molds
Protozoa exist in the intestinal tract of humans and are expelled in feces. Contamination of foods can occur when sewage is used to enrich garden or farm soil, and as a result of hand-to-food contact during food preparation. Chief sources are untreated water and foods that require much handling. Giardiasis and Amebiasis (Amoebic Dysentary) are human diseases caused by protozoa. Symptoms include diarrhea, abdominal pain, nervousness, loss of weight, and fatigue. Anemia may also be present. Illness can be prevented by sanitary handling of foods, avoidance of raw fruits and vegetables in areas where the protozoa are common, and proper sewage disposal.

About Bacteria, Viruses, Molds
Organisms that depend on nutrients from a living host to complete their life cycle are called parasites. Trichinosis and Toxoplasmosis are two human diseases caused by parasites. The source of Trichinosis is undercooked pork or game infected by Trichinella spiralis larvae. Thorough cooking kills the larvae. Fecal waste from infected cats is the source of Toxoplasmosis. It is prevented by sanitary food handling practices and thorough cooking of poultry and meat (particularly lamb and pork). Because newborns are at greatest risk, pregnant women should wash hands thoroughly after petting cats and avoid changing cat litter boxes.